



EFFICACY OF AUTOLOGOUS SERUM THERAPY IN PATIENTS WITH CHRONIC SPONTANEOUS URTICARIA ASSOCIATED WITH THYROID AUTOIMMUNITY.

Dermatology

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ABSTRACT

Introduction: Autologous serum therapy (AST) is a promising therapy for treatment-resistant urticaria. The therapy is useful as it is a cost-effective and simple OPD procedure which shows in chronic autoimmune urticaria patients. **Objectives:** 1) To evaluate the efficacy of autologous serum therapy in chronic urticaria patients with thyroid, with and without anti-thyroid peroxidase antibodies. 2) Comparison between the urticaria activity score in patients with and without thyroid autoimmunity. **Methods:** 50 patients with chronic urticaria were categorized into two groups based on thyroid antibodies (30 patients without anti-thyroid peroxidase antibodies-GROUP A and 20 patients with anti-thyroid peroxidase antibodies-GROUP B). Intramuscular injection of 0.05ml/kg body weight of autologous serum was injected fortnightly. **Results:** Significant improvement in urticaria activity score was noted in patients with Anti-thyroid peroxidase antibodies. 15 patients in group B showed remission with AST (75%) and 15 patients in group A showed remission with AST (50%). UAS reduced significantly in ANTI TPO-positive individuals compared to ANTI TPO negative. **Conclusion:** Autologous serum therapy is a valuable adjunct for treating chronic urticaria patients with thyroid autoimmunity as there are no dreaded side effects as it is the own patient's serum that is injected and has a significant improvement in quality of life.

KEYWORDS

Autologous serum therapy, chronic spontaneous urticaria, thyroid autoimmunity

INTRODUCTION:

A prevalent skin condition with a point frequency of 0.5 to 1 percent in the general population is chronic urticaria. Chronic spontaneous urticaria patients experience recurrent attacks of intense itching and wheal formation, which may also be accompanied by angioedema lasting more than six weeks.¹ Unknown factors may contribute to the pathogenesis of chronic urticaria, including anxiety, allergies to certain foods or food additives, and chronic infections.² About 30 to 50 percent of cases of chronic urticaria have no known cause; these instances are classified as chronic idiopathic urticaria.³ Functional Immunoglobulin G (IgG) antibodies against Immunoglobulin E (IgE) or high-affinity IgE receptors can be detected in 25-30% of patients with chronic spontaneous urticaria.⁴ It remains a major problem in terms of investigation and management and causes significant morbidity to the patient with high pill burden.⁵ Chronic urticaria significantly impacts the quality of life of affected patients both physically and psychologically. Nearly 30-50% of people with chronic idiopathic urticaria have an underlying autoimmune condition, with thyroid disease being the most frequent.⁶ Autologous serum therapy or auto hemotherapy which is a cost effective and simple opd procedure is regarded as a promising and potentially curative therapeutic option for chronic urticaria patients.

AIMS AND OBJECTIVES:

- 1) To evaluate the efficacy of autologous serum therapy in chronic urticaria patients with thyroid, with and without anti-thyroid peroxidase antibodies.
- 2) Comparison between the urticaria activity score in patients with and without thyroid autoimmunity.

METHODS:

This study was conducted in the Department of Dermatology, Venereology and Leprosy, Asram Medical College, Eluru. 50 patients were included in the study. Study was conducted for a period of 6 months. Enrolment was done on the basis of the inclusion criteria which were any sex, aged between 18 years and 60 years, recurrent wheal episodes daily for more than 6 weeks and people willing for the study. Patients who had a history of drug allergy, on steroids, pregnant and lactating women, immunocompromised patients, major systemic illness, substance usage, hereditary angioedema, connective tissue disorders were excluded. Data analysis was done using Statistical

package for social sciences (SPSS) software version 21. Details of the patients along with history of presenting illness, past history especially allergic history/ history of atopy were taken. Next, ANTI TPO levels were done for all patients who were willing for the study.

AST procedure Autologous serum was prepared using 5 ml of patient's venous blood as done for ASST. 2.5 ml of the prepared serum was injected intramuscularly in the gluteal region on alternate buttocks weekly. A total of 9 injections were given as part of the protocol.

A total of 50 patients with chronic idiopathic urticaria with abnormal thyroid profile were enrolled into study and anti thyroperoxidase levels were done. ASST (Autologous serum skin test) is also performed in all individuals. They are divided into 2 groups as anti TPO positive and anti-TPO negative respectively. All the patients irrespective of the results autohemotherapy was given. In both groups of patients fortnightly injections of autohemotherapy was given. Follow up was advised for every 2 weeks from initiation of autohemotherapy and effect was recorded by using urticaria total severity score (TSS). Disease assessment was done by urticaria total severity score (TSS) which consist of six separate parameters of disease activity. Disease assessment and response to therapy was done using TSS. TSS is calculated using number and size of wheals, duration of persistence of wheals, frequency of wheals, intensity of pruritus and frequency of antihistamine use. These parameters were recorded on a 0 to 3 points scale weekly from baseline to end of treatment at 9 weeks, then the score was recorded at follow up after 13 weeks and 21 weeks. TSS has a maximum score of 18 and minimum score of 0 and the disease severity was classified as mild (TSS 1-6), moderate (TSS 7-12) or severe (TSS 13-18). Data were presented as frequency, percentage, mean and standard deviation. Independent sample t test was used to calculate the p value.

Table 1: Urticaria TSS

PARAMETERS	0	1	2	3
NO. OF WHEELS	NONE	≤10	11-50	>50
SIZE OF WHEELS	NONE	<1cm	1-3cm	>3cm

INTENSITY OF PRURITUS	NONE	mild	moderate	Severe
DURATION OF PERSISTANCE	NONE	1hour	1-12 hours	>12 hours
FEQUENCY OF APPEARANCE	NONE	<once a week	2-3/week	Daily/almost daily
FREQUENCY OF ANTIHISTAMINE	NONE	< once a week	2-3/week	Daily/almost daily

RESULTS:

This study consisted of 50 patients. 16 were males and 34 were females. The youngest patient was 18 year and oldest patient was 59 years old. The median age was 34.7 years. Anti TPO was done to divide them into Anti TPO positive and Anti TPO negative groups. 20 patients were Anti TPO positive and the rest were negative. All the patients had history of urticaria for at least 6 weeks or more.

Table 2:Age-sex Distribution:

Age-	Males	Females
16-30 yr	8	21
31-45 yr	6	9
46-60 yr	2	4

Table 3: Anti-tpo Levels:

ANTI TPO	NO. OF PATIENTS
POSITIVE	20
NEGATIVE	30

Table 4: Difference in response ASST + vs ASST - patients.

Mean TSS at	ANTI TPO +ve	ANTI TPO -ve	P value
9 weeks	4.13	4.93	0.004
13 weeks	3.48	4.30	0.014
21 weeks	3.13	4.00	0.015

Table 5:Trend of fall of Mean TSS in ANTI TPO (+) and ANTI TPO (-) group after doing AST

WEEK	(MEAN) TSS(ANTI TPO +VE)	(MEAN) TSS(ANTI TPO - VE)
BASELINE	12.2 (100%)	11.3(100%)
4TH WEEK	11(90.1%)	10.7(94.6%)
6TH WEEK	8.8(72.1%)	9.6(84.9%)
9TH WEEK	6 (49.1 %)	8.5(75.3%)
21 WEEK	1.5 (23.7%)	6.3(55.7%)

At 9th week, ANTI TPO positive group had 69% improvement in TSS and ANTI TPO negative group had 61.5% improvement in TSS. By the end of the follow up period there was 77% percent improvement in TSS in ANTI TPO positive patients and 69% improvement in TSS in ANTI TPO negative patients. The difference between the two groups was statistically significant ($p < 0.05$).

DISCUSSION:

Chronic spontaneous urticaria is a chronic disorder causing considerable annoyance to the patient and not uncommonly debilitating which negatively affects the social as well as work life of the patient. The disease causes a burdensome toll on the physical, emotional as well as financial aspect of the patient's life. Pharmacotherapy with H1 antihistaminic remain the primary modality of treatment where the target is symptom control. It acts by preventing degranulation of mast cells and neutralizing the granulation products. This remain an effective modality for treatment except in severe and refractory cases⁶. Consequently there is a high pill burden as patients are required to take them on a daily basis, even twice a day. For severe and refractory cases, the line of treatment involves corticosteroids and immunosuppressants which have a significant side effect profile as well as high cost of therapy. A need has long been there to find and alternative sustainable therapy with good effectiveness and least side effects. AST has risen from such a need and multiple studies seem to prove the benefit of this modality, even though the mechanism of action remains unknown. The clinical course is unpredictable and treatment goes on till remission.

In our study 65% were found to exhibit ANTI TPO positivity which is similar to that reported by krupashankar et al⁵. Anti TPO (+) patients showed significant differences in total severity scores as compared to anti TPO (-) patients. ANTI TPO +ve had better response to autohemotherapy than ANTI TPO-ve patients. Staubach et al

performed follow up evaluation 4 weeks after the last injection using autologous whole blood. In our study we performed follow up evaluation 12 weeks after last injection to assess the longevity of the suppressive effect of this therapy. In our study, symptoms of urticaria showed improvement by 4th week of initiation of auto hemotherapy in anti TPO +ve groups which is similar to that reported by debbarman et al⁴. Verbal feedback to is also taken to assess the severity index. 37.9% of ANTI TPO (+) and 13.8% of ANTI TPO (-) patients showed complete clearance by 21 weeks. The reduction in the symptom is accompanied by reduction in pill burden and decrease in severity score. Mean percentage reduction in TSS show that there was a dramatic decline in severity in the anti TPO (+) group. There is mild decrease in TSS in anti TPO (-) group. Looking at the results of our study, we can consider AST can prove to be an extremely feasible adjuvant therapy for chronic spontaneous urticaria with very little side effects and more studies on a larger scale should be done to prove its benefits beyond doubt.

CONCLUSION:

The relatively recent modality of AST for treatment of chronic urticaria is an effective technique for treating chronic spontaneous urticaria. Urticaria patients who has anti TPO antibodies positive respond more favourably to auto hemotherapy than who test negative. The exact mechanism how auto hemotherapy works is not known but it may prove to be cost effective and better curative modality to reduce pill burden and shows a promising role in treatment of the chronic urticaria.

Conflict-of-interest:

The authors have no conflicts of interest to declare.

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